



Attorney Docket No.: Q68278  
**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of

Shigeru KATAYAMA, et al.

Appln. No. 10/073,907

Group Art Unit: 2873

Confirmation No.: 4762

Examiner: Not Yet Assigned

Filed: February 14, 2002

For: PLASTIC OBJECT

**INFORMATION DISCLOSURE STATEMENT  
UNDER 37 C.F.R. §§ 1.97 and 1.98**

Commissioner for Patents  
Washington, D.C. 20231

Sir:

In accordance with the duty of disclosure under 37 C.F.R. § 1.56, Applicants hereby notify the U.S. Patent and Trademark Office of the documents which are listed on the attached PTO/SB/08 A & B (modified) (substitute for PTO Form 1449) form and/or listed herein and which the Examiner may deem material to patentability of the claims of the above-identified application.

One copy of each of the listed documents is submitted herewith.

The present Information Disclosure Statement is being filed: (1) No later than three months from the application's filing date for an application other than a continued prosecution application (CPA) under §1.53(d); (2) Before the mailing date of the first Office Action on the merits (whichever is later); or (3) Before the mailing date of the first Office Action after filing a

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request for continued examination (RCE) under §1.114, and therefore, no Statement under 37 C.F.R. § 1.97(e) or fee under 37 C.F.R. § 1.17(p) is required.

In compliance with the concise explanation requirement under 37 C.F.R. § 1.98(a)(3) for foreign language documents, the undersigned submits the followings which has been provided to him:

**JP 2000-056112A** discloses a three-dimensional diffraction optical device having a three-dimensional refractive index distribution to be written in an optical glass, utilizing a permanent refractive index variation or an optical damage caused by multiphoton absorption of an ultrashort pulse laser beam having a pulse width of 1 nanosecond to 1 femto-second and a wavelength of 200 to 2,000 nm to the optical glass. This reference also discloses that the optical glass is an optical plastic, and the optical plastic is an acrylic material. Example 3 of this reference uses an acrylic resin.

However, on review of the whole disclosure of this reference, the description regarding the optical plastic is merely a literal description, and there is no specific description regarding the optical plastic. Example 3 of this reference shows use of an acrylic material, but there is not any specific description as to detailed treatment conditions and as to that a three-dimensional diffraction optical device obtained has what properties or characteristics.

This reference may suggest that a three-dimensional diffraction optical device may be obtained if an optical plastic is subject to treatment of multiphoton absorption of an ultrashort pulse laser, but this reference does not contain any explicit description showing that a three-dimensional diffraction optical device having what properties or characteristics is obtained by the

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treatment under what conditions. It is therefore not believed that this reference suggests the present invention.

JP 2001-083347A discloses a three-dimensional structure equipped with a porous body having three-dimensionally continuous through-holes, and plural areas formed in the porous body and filled with substances, wherein the plural areas filled with substances have parts arrayed in a period of average 0.1-2  $\mu\text{m}$  so as to form a photonic band.

On the other hand, the present application claims a plastic having a structurally modified part whose structure has been modified by irradiation with a laser light having a pulse duration of  $10^{-12}$  second or shorter.

The presently claimed invention differs from this reference in that the object is not porous, and the object does not have a porous body having plural areas filled with substances.

It is therefore not believed that this reference suggest the claimed invention.

The submission of the listed documents is not intended as an admission that any such document constitutes prior art against the claims of the present application. Applicants do not waive any right to take any action that would be appropriate to antedate or otherwise remove any listed document as a competent reference against the claims of the present application.

Respectfully submitted,

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Date: April 24, 2002